

WHITE (W.T.)

AN
ANNIVERSARY DISCOURSE,

DELIVERED BEFORE THE

NEW YORK ACADEMY OF MEDICINE,

NOVEMBER 16, 1876.

BY
WILLIAM T. WHITE, M. D.

PHYSICIAN TO CHARITY HOSPITAL; ATTENDING SURGEON TO THE PRESBYTERIAN
HOSPITAL; SURGEON TO THE DEMILT DISPENSARY, NEW YORK.



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ANNIVERSARY ADDRESS.

Mr. President and Fellows of the Academy of Medicine:

THIRTY years ago an invitation was issued to the medical profession of this city, to meet and organize a new society, whose object should be to promote the progress of the science and art of medicine; the result was, the formation of this Academy, and we are here to-night to commemorate that event. It would obviously be a fit method of observation to recount the names, and to do honor to the labors, of those who have been conspicuous in the annals of this Society; but as we are now arrived at the hundredth anniversary of our national existence, a broader sphere of investigation is suggested, and we are invited to examine the progress which our profession has made, not simply during the brief lifetime of a scientific body like ours, but during the whole century. We propose, therefore, to review, in a brief suggestive manner, the advance which has been made during the past hundred years, and to show the main force of those improvements which have been achieved by the profession, and especially in our own country.

In contemplating a beneficent profession like ours, organized in every civilized country, carrying on its researches and its services wherever human sickness requires relief, there are two questions which offer themselves to the mind. First, there is the question how far the great body of facts and principles which make up our science is growing more clear, more effective, and more definite, for the beneficent purposes

for which it is designed. Secondly, there is the question as to the instruments and methods by which the growth of medical knowledge is promoted and its more general diffusion secured. These are the two questions which will engage our attention to-night. We shall inquire how far progress can be reported in the domain of medicine, of surgery, of physiology, of chemistry, of pathology, and of hygiene; and we shall also inquire by what helps, expedients, and agencies, the science is taught to the great body of medical practitioners, so that the whole profession may become permeated and improved by the progress which is made in the theory and practice of the healing art.

Taking up first of all the latter question, we shall find that there are two or three chief means by which medical science is taught and its advance promoted. There is, first, the influence of the press; secondly, that of our medical schools; and, thirdly, that of our medical societies.

At the outbreak of the Revolutionary War in 1776, the original thirteen States contained a population of less than three millions, with about two thousand physicians. At present the population of this country is more than forty millions, with about forty-seven thousand physicians. A century ago, most of the physicians practising in this country were deprived of the advantages of regular academical study; still a number of them had received more or less of their education in the medical schools of Europe. The cost of a trip across the Atlantic was then, however, so great as to place European study beyond the reach of most of our young practitioners. For these and other reasons it is computed that fully two-thirds of our medical men in 1776 had received a very imperfect professional education, if we measure their knowledge by the standard of our own times. Previous to the Revolutionary War only two medical schools had been established in this country, the University of Pennsylvania, at Philadelphia, in 1765, and the Medical Department of King's College, at New York, in 1768. From the records we find that, up to the year 1776, King's College had graduated fourteen students, while none

are mentioned as having been graduated by the University of Pennsylvania. The first diploma for doctor in medicine from an American medical institution was conferred in New York on Robert Tucker, M. B., in May, 1770. We thus see that the ardor, of which so much has been said in the newspapers and journals, for multiplying medical graduates, had not at that early day sprung up in this country. Both the institutions we have mentioned began by conferring two degrees in medicine; the lower degree was that of bachelor, and the few students who received the higher degree of doctor were required probably to pass a second and more severe examination. (Of this, however, we have no precise record.) During the war both our medical colleges were closed, and, although the requirements for surgeons both in military and civil life were so great, it is probable that the numbers of the medical profession were rather diminished than increased during that struggle. After the close of the war a new impulse was given to medical studies, and at the end of the eighteenth century two hundred and twenty students had already graduated from American schools.

Among the more conspicuous impediments to the study of surgery and anatomy we may mention the scarcity of material for dissection. The facilities for studying anatomy a century ago were very poor compared with those of the present day. Subjects for dissection were scarce, costly, and very difficult to be obtained. The laws of the States held each surgeon responsible for an ordinary amount of surgical skill, and menaced him with severe penalties if he failed to possess it. In order to acquire the knowledge demanded of him under the law, he was obliged to violate another law which prohibited dissections, for otherwise he could not gain the skill which was exacted from him; thus it happened that the students of those old times were tempted to become resurrectionists, and much demoralization was the inevitable result. In our more advanced times dissections are legalized in most if not in all the States, and the student who has such a work as Gray's "Anatomy," or any similar French, English, or

American standard treatise, can gain a fair knowledge of anatomy with half the toil and study required under the clumsy methods of a century ago.

A better characteristic of the educational methods of that early period was, that each student was required to enter the office, or place himself under the instruction, of some prominent physician or surgeon. After two or three years of study and a limited amount of clinical instruction gained by visiting patients with his tutor, he was often deemed competent to begin practice without ever having attended a lecture at a medical college, and without the slightest opportunity of gaining experience by serving in a hospital. The thoroughness and accuracy of the instruction which was given under these discouraging circumstances were, of course, very diverse in different cases, and its value for the training and discipline of practical physicians is illustrated by the fact that many of those young men were very successful in cultivating both the theory and the practice of their profession. Perhaps the wonderful progress which the nation has made since that period in its facilities for medical study could scarcely receive a more striking illustration than by the fact that since the close of the war, in 1783, our two medical colleges have increased to eighty-four, of which about sixty are in operation at present. Last winter these sixty colleges had about six thousand six hundred and twenty students, of whom one-third, or twenty-two hundred, graduated. In consequence of this rapid extension of the means of obtaining medical education, many changes have taken place in the habits of our young practitioners. As recently as thirty or forty years ago, our medical students found the means of education so inadequate here, that they were tempted to follow the custom of their fathers and go abroad to get a foreign degree, and to complete their education in London or Paris.

The prestige which attended this course gradually passed away, and, at the present time, few of our students go abroad except for the purpose of studying some specialty; and our facilities, even in that respect, are so great that but little ne-

cessity exists to supplement them by foreign studies. As a proof of the efficiency of our medical colleges, we may mention that the aggregate number of students who have received the degree of Doctor of Medicine in this country is seventy-three thousand five hundred and eighty-eight. No reports with which we are acquainted give a comparative view of the number of students who have graduated in medicine in England, France, or Germany, during the last hundred years. It would be extremely interesting if some of our members who are given to statistical research would make an effort to obtain the information which has been suggested in regard to other countries.

As to our standard of medical education, it is not so high as it ought to be, and every reasonable effort should be made to raise it. This object, however, can scarcely be attained unless our colleges will unite to demand of their students a more extensive and thorough course of preparatory study. To raise the standard of graduation we must also raise the standard of matriculation. The whole of the power to enforce this reform rests with the schools, but there is so much competition between these institutions, that each is interested in graduating every year as large a class as possible. To meet the difficulty, it has been suggested that a Board of Examiners should be created like that of the University of London, empowered to confer degrees, but having no connection with any of the schools. Another reform which has been spoken of is to lengthen the term of study by one or two years. If these and other suggestions could be adopted, and if the standard of matriculation were so raised as to secure an adequate preliminary training to every student of medicine, we should be able to make a good beginning, the evils of the present system would gradually pass away, and the results could not fail to be better, both for the profession and for the public.

Among the pioneers in medical education in this country, perhaps one of the most remarkable was Dr. Nathan Smith, of New Haven. At the great revival of medical education, after the Revolutionary War, he began to teach systematically

the various branches of medical science, and he lectured from 1798 to 1810 at Dartmouth, where he was for twelve years the whole faculty of the school. This distinguished professor lectured afterward at Bowdoin and at Yale Colleges.

But it is time to pass to another branch of our subject. Besides medical colleges, there is the medical press, whose efficiency in spreading the scientific knowledge of our profession has been growing in activity and usefulness throughout the century. There are now in course of publication about two hundred and eighty regular medical journals; of these, forty-six are published in the United States, fifty-seven in Germany and Austria, fifty-two in France, twenty-nine in Great Britain, thirty-one in Italy, eight in Belgium, and eight in Mexico. One hundred years ago, we might almost count upon our fingers the number of medical periodicals published in the whole world, excepting the reports of hospitals, the transactions of medical societies, and the annals of other learned and scientific bodies. The first medical journal published in France was *Les Nouvelles Découvertes en toutes les Parties de la Médecine*; this journal was established in 1679, and, up to 1776, only six others had been published in that country. The *Gazette Médicale de Paris* was started in 1773 as the *Gazette de Santé*, and the name was changed in 1829; it is now said to be the oldest medical journal published.

In Great Britain, the first regular medical periodical ever published, except the transactions of a few societies, was *Duncan's Medical Annals*. This journal was founded in 1796, one year before the first medical journal was issued in New York. It was discontinued in 1804.

The second medical journal in the English language was the one just referred to as the first published in this country. This was the *New York Medical Repository*; it was established in 1797, by Drs. S. L. Mitchill, E. Miller, and E. H. Smith. This pioneer of the medical press was followed by a number of other journals, of longer or shorter life; and, up to 1827, twenty-one different medical periodicals had been

started. During the century, two hundred and fourteen regular medical journals have been commenced in this country; the number now published is about fifty. Besides these, a large number of irregular journals have been started in the interest of the several sects, but only a few of these serials are now issued.

The remark is often made that there are too many medical journals in this country; it is no part of our present task to discuss this opinion. We may, however, suggest that medical journalism has accomplished an important work in the United States, and that its mission for the future promises to be still more important. One of the more obvious arguments in favor of active journalism is, that it induces busy practitioners, whose habits are retiring and modest, to report their cases and to write out the results of their observations on topics which they may be familiar with. All over the country, a number of well-qualified and industrious observers are thus stimulated to direct their attention to specific inquiries; information in aid of these combined investigations is gathered from a multitude of independent observers, and a habit of noting down and placing upon record medical cases is stimulated, to the great advantage both of the individuals and of the general body of the profession.

With regard to medical literature generally, the statistics which have been published show that the United States occupy a position below that which has sometimes been claimed. In England, there are published three times as many medical works as in this country; in Italy, twice as many; in France, eight and a half times as many; and in Germany, eight times as many.

Among the works on anatomy may be mentioned those of Wistar, Horner, Morton, Leidy, and Smith; on physiology, those of Dunglison, Draper, Dalton, and Flint; on surgery, those of Dorsey, Gross, Pancoast, and Hamilton; on *materia medica*, those of Eberle, Beck, and Wood; on the theory and practice of medicine, those of G. B. Wood, and Flint, Sr.

The first and only American work on histology was pub-

lished by Dr. E. R. Peaslee, in 1855. Since that time, several reprints of foreign works have been published.

Probably, the most prolific medical writer in the country was Dr. Dunglison, the author of our "Medical Dictionary."

The reprints and translations of medical books published abroad are very numerous. To enumerate all these foreign and home publications would be an almost infinite task. The medical and surgical history of the war is a work of great value, on many accounts, and especially because it settles disputed points in regard to numerous operations in surgery.

We now come to consider the influence on the progress of medical science which is due to the organization of efficient medical societies. Previous to 1776, there was only one State medical society in America, that of New Jersey, which was organized in 1766. At present, every State, and nearly every Territory, has its own medical society, and most of our large cities have several such organizations. The American Medical Association was founded in 1847, with a view to reconcile the interests of the profession in different parts of the country, and to elevate the standard of medical education, by the influence it might exert upon the medical schools. It has furnished us with a code of medical ethics for our guidance in the relations we sustain to one another and to the public. This code is, perhaps, not altogether perfect, but it offers a sufficient guide to those who are disposed to follow any written one. Its transactions, like those of all or nearly all scientific societies, contain many valuable papers, as well as some of less merit.

It would be interesting to learn to what extent medical societies have been organized in Europe. In all probability, our national tendencies to union and organization may have caused more activity in the formation of medical societies in this country than has prevailed abroad. The literature of this department of medical progress is, however, so scanty that we are left too much to conjecture. What is certain is, that, wherever medical societies have been established in this country, they have been productive, when well managed, of nu-

merous good results. They not only tend to bring out new facts, and to promote the habit of observation and the careful reporting of cases, but they also establish such relations between their members as to foster a better social and professional feeling. Moreover, it may be mentioned as one of their advantages that, by united action, these associations are better able to roll aside the mischievous current of empiricism, whose baleful effects upon the community are thus mitigated, and may hereafter be wholly destroyed.

Having thus surveyed the various agencies of schools, literature, and medical societies, by which the growth of medical knowledge has been promoted during the last century, let us now glance at the great body of science on which the healing art is based. Of course, it would be folly to attempt to enumerate all the improvements which have been made in the various branches of medical knowledge; such a task would be both difficult and tedious, and it would require more time than is at the disposal of this meeting. I will, however, try to bring under review some of the more prominent discoveries, singling out especially those which have been the most beneficial to the public, and particularly those which have originated in this country. It is not always an easy task to decide to whom belongs the credit of any particular discovery, for in many cases there are several claimants to that honor. Indeed, it has often happened in the domain of medical science, as elsewhere, that two or three individuals have, at about the same time, without any mutual knowledge, discovered the same remedy, made the same operation, or devised the same method of treatment. Hence it often becomes a delicate question, and causes no small conflict of feeling and opinion, to allot to the real owner the merit of originality to which he has a just claim. Not a few operations, first made in this country by American practitioners, have been claimed by others across the Atlantic, and these claims have been withdrawn with difficulty, and only on the strongest evidence. In the early days of medical progress in this country, the means of making known the new discoveries

of our physicians were very limited, as there were so few medical journals which were widely read, and the means of communication by mail between distant parts of the continent were slow and costly. With the progress of events, all these difficulties have passed away, and every man possesses ample facilities, in the numerous medical periodicals and societies, to bring to the notice of the profession, without delay, anything new he may have discovered. We might mention, did time permit, a number of references in the earlier journals published in this country, in which are recorded many original discoveries in the different branches of medical science.

We must, however, omit these details, and pass to some of those specific points in the history of the last century which further illustrate the growth and progress of medical knowledge. Perhaps the greatest improvement which has ever been realized in modern times was the discovery of vaccination. Just one hundred years ago, Jenner's attention was called to the protective power exerted by the vaccine virus. But he did not publish his first paper upon that subject until 1798. Like all new discoverers, he at first encountered considerable opposition, but he had the satisfaction enjoyed by so few innovators, of converting his enemies, and of obtaining a substantial reward from the government of his country.

From the earliest beginnings of the healing art, efforts have been made to lessen the mortality, and to prevent the disfigurement, of that great scourge of former times, the small-pox. At a very remote period, the Chinese practised inoculation with a view to reduce the death-rate from this malady. In 1721, by the efforts of Lady Mary Wortley Montagu, inoculation was introduced from the East into England, and the enthusiastic patroness of the new prophylactic had her own daughter inoculated. The success was so complete, that public opinion was turned in favor of the Oriental innovation, and the mortality from small-pox was considerably reduced. As late as fifty years ago, inoculation was practised occasionally in England, but it gradually fell into disuse, and was finally prohibited by act of Parliament.

Before the introduction of the preventive whose beneficent success we have just described, the deaths from small-pox were estimated at fifty to seventy-five per cent.; the average now is estimated as one in seventy-five, and a more illustrious example of one of the tendencies of medical progress, that of preventing disease, could scarcely be given. Besides the great gain in the death-rate from the small-pox, there has been also a similar gain in regard to the prevention of disfigurement. Formerly, it was quite common to meet in the streets persons badly marked with small-pox; at present such cases are very rare, and, where one is seen now, ten or twenty were met with a quarter of a century ago. It has thus been proved that small-pox, although one of the most fatal diseases known, can by proper vaccination be rendered almost harmless, or even be stamped out altogether. It is demonstrated by experience that every child vaccinated before it is two months old, if the operation be afterward repeated every three or five years, will receive an almost complete protection from that loathsome disease. In this country, vaccination was first performed in 1799, by Dr. Waterhouse, of Boston. Soon afterward, it was introduced into this city. Dr. Valentine Seaman was the first to perform it here, in 1801. With the usual energy of the American character, the profession pushed forward the new preventive. In 1802 a vaccine dispensary was established in this city, and was placed under the charge of Dr. Seaman; he encountered great opposition at first, and an interesting story might be written of the early struggles, subsequent success, and final popularity, of the first vaccine dispensary on this continent.

With regard to the efficiency of vaccination there has been much discussion, and it will probably be actively kept up throughout a great part of the next century. Simon reports that in 6,000 cases he found the ratio of deaths to be seven and a half per cent. when there was one vaccine cicatrix; four and an eighth per cent. when there were two cicatrices; one and three-quarters per cent. when there were three cicatrices; and three-quarters per cent. when there were four

or more cicatrices. The Spanish Government attached so much importance to vaccination that, in 1803, it sent an expedition to Spanish America with several physicians and children, to be vaccinated on the way. This introduced the operation into that continent, and numerous societies were formed for its perpetuation.

Next to vaccination the discovery of anæsthetics was perhaps the greatest boon ever bestowed by medical science upon mankind. The anæsthetic properties of sulphuric ether were first demonstrated to the public in the Massachusetts General Hospital in October, 1846, and soon came into general use and appreciation throughout this country. The next year Prof. Simpson, of Edinburgh, while experimenting with different substances, discovered the anæsthetic virtues of chloroform. Since that time several other substances, such as nitrous oxide, chloric ether, bichloride of methylene, etc., have been used as substitutes, but as yet none of them have stood the test as well or performed the office as satisfactorily as ether and chloroform. In the United States, and especially in this city, the general preference is given to ether; as it is considered the safer of the two; while in Europe, and particularly in England, chloroform is for the most part preferred. It is well known that the use of ether or chloroform is by no means entirely free from danger, but that danger is so small when proper care is used, and when proper cases are selected, that the element of danger may be eliminated from our consideration. From some statistics which I have been able to collect, I find that in Guy's Hospital, London, one death occurred in 12,000 cases when chloroform was used. In the Crimean War no death occurred in 25,000 cases. In fourteen of the London hospitals one death occurred in 3,461 cases, Dr. Andrews, of Chicago, collected from different American and European hospitals 117,078 cases, with forty-three deaths, or one in 2,723 cases.¹ The danger from sulphuric ether has been much less than that which attends chloroform. The statistics give four deaths in 92,815 cases, or one death in

¹ Gross's "Surgery."

23,204 cases; this certainly shows a very low average of mortality. When a mixture of ether and chloroform was used, one death occurred in 5,588 cases. The average number of deaths from these three preparations is about one in 8,744 cases. Much is claimed for the bichloride of methylene, introduced by Dr. Richardson in 1867, but it does not seem to take the place of ether or of chloroform. Local anæsthesia, by means of ether-spray thrown upon a part, is frequently used while removing small tumors. Who was the first to practise this treatment is not stated, we believe, in any published records of our medical history. It is a curious circumstance that, although many deaths have occurred from the use of chloroform, they have usually taken place where the anæsthetic has been administered for trivial operations. Very few cases are on record in which death has occurred in severe operations from the use of chloroform or ether. It is specially worthy of note that no death has ever yet been ascribed to chloroform when that anæsthetic has been used during parturition.

In discussing the merits of vaccination and of anæsthetics we have distinctly brought before us the principles which have stimulated one important part of the progress which our profession has realized during the last century: we refer to the prevention of disease, and the conserving of the strength of the patient. As a further illustration of these principles we might mention various improvements in auscultation and percussion for obtaining a knowledge of the pathological condition of the chest in phthisis, pneumonia, pleurisy, and other maladies. It has often been said that a skillful surgeon, if he would be successful in his operations, should have eyes upon the tips of his fingers, and sensation at the point of his knife. By auscultation and by the various instruments which have been invented for stethoscopic purposes, the medical observer can go even further, and can, as it were, look into the living organism to learn those facts which are of the highest importance, and on which the life of the patient may depend. Did time permit, we might extend these remarks to the in-

vention of the laryngoscope, otoscope, the various specula, and fracture-apparatus, as well as to a multitude of ingenious instruments, all of which have been devised for the purpose of aiding in the diagnosis, prognosis, and treatment, of disease. Or we might speak of the stethometer for measuring the amount of expansion during inspiration, and the pelvineter for measuring the size and shape of the pelvis. There are also the ophthalmoscope, the lithotrite, the atomizer, the hypodermic syringe, the aspirator, and the sphygmograph. The thermometer also, as is well known, is now indispensable for obtaining accurate information as to the temperature of the body (so as to diagnose malarial from continued fever, and neuropathic affections from inflammations).

Fifty years ago Laennec laid the foundation of our pathology and treatment of pleuritis. Except Laennec, there has perhaps been no man, since Haller, who effected so great a change or stimulated so conspicuous an advance in the knowledge of particular diseases as Dr. Richard Bright, of London. He was the first to point out the connection between dropsy and albuminuria and disease of the kidney; previous to the year 1824, when Dr. Bright made this discovery, dropsy was considered as a primary disease, dependent upon a deficient action of the absorbents. We may also mention the fact that to Chomel and Louis is due the credit of showing that typhoid fever is a distinct species of continued fever, having a definite group of symptoms. Moreover, scurvy, once the great scourge of armies and navies, seldom makes its appearance in our time, when proper precautions are taken in regard to diet. Another illustration was suggested when we were speaking of small-pox. This malady formerly caused the death of from fifty to seventy-five per cent. of those affected with it; it is now fatal to not more than five to seven per cent. of its victims. We have not time to detail the improvements which have been made in the resuscitating of drowned persons. A century ago scarcely anything was known by the profession on this subject which was not equally familiar to the layman. The history and details of Marshall Hall's method of resuscitation are well

known, as are also the improvements made upon it by Silvester.

Let us now look at the results of medical progress upon public health and the rate of mortality. It is just a hundred years since the statistical facts were collected on which the Carlisle tables were made. These tables show that out of 603,724 men and women of the age of thirty, there will survive at the age of forty, 538,584; at the age of fifty, 464,280; at the age of sixty, 369,831; at the age of seventy-five, 161,124. Such was the expectation of human life from seventy-five to one hundred years ago. Complaints were made by the old life-insurance companies that the mortality in actual life was greater than it is set down in the Carlisle tables. But we have a significant illustration of the growth of medical science, and of the improvement of prophylactic methods, that human life is now longer on the average, and these tables err now in the contrary direction. To show that, notwithstanding the diseases incident to the high pressure at which in our day the majority of people live and work, the length of human life is on the average extending, we may state that the Mutual Life Insurance Company of this city published lately a revised set of tables, founded upon their actual experience with insured lives. Referring to this table, we find that, of 603,724 persons at the age of thirty, there survive, at the age of forty, 553,431; at the age of fifty, 502,049; at the age of sixty, 427,588; and at the age of seventy-five, 215,177. Comparing these figures with those given by the old Carlisle tables we find a very great difference in favor of the recent table. The evidence is thus very strong in favor of the theory that human life is lengthening. We have thus a gratifying illustration of the conservative forces which are developing themselves in modern times by the impulse of advancing medical knowledge. There are, however, not a few influences at work in society of an opposite character; to these we must presently direct attention for a few moments.

First, however, we must speak briefly of the revival in the use of electricity as a medical agent. During the last few

years the claims made for it by some of its too enthusiastic devotees have often been excessive. According to some of these gentlemen, electricity was to be the great panacea, and its use was to supersede that of almost every other remedy; time, however, has modified these extravagant anticipations. Like many other remedies for which too much has been claimed, electricity is now perhaps in some danger of being underestimated. The advantages which it is capable of conferring in certain classes of nervous disorders are well known. It is to be regretted, if the errors of the first introduction of electricity as a therapeutic agent should cause any of the younger or less instructed members of the profession either to overvalue it on the one side, or to neglect it on the other.

The first systematic treatise on medical electricity was published in 1781, by Dr. Grapplingiesser, of Berlin. Since that time many works of various merit have been published of which we need not here speak in detail.

We must also omit the still more tempting subject of organic chemistry. A century ago the science scarcely had an existence; and I should far exceed the limits of a short address were I to attempt to sketch the history of the extensive discoveries which have immortalized the names of Dalton, Gay-Lussac, and a host of distinguished investigators. At certain epochs the profession and the public have had their attention attracted by men who have suddenly appeared upon the stage, and, by their brilliant discoveries, have revolutionized old theories and established new and more rational systems. It is thus that the theory and practice of medicine have made progress by the discovery of Jenner in vaccination, of Harvey in the circulation of the blood, of Paré in the use of the ligature, of Laennec in auscultation and percussion, of Bright in the relations of dropsy to renal disease, of Morton in anæsthesia, and of many others in various departments which have attracted less notice. It is worthy of remark, however, that the progress which has been thus made is due to the labors of men belonging to the regular school; and these men have rarely won distinction or achieved any valuable progress with-

out two great qualifications: 1. They have had a solid groundwork of education as to the facts and principles of medical science. 2. They have devoted themselves not only to the exploration of new facts, but to the comparison and collating of them with established principles, so as to unite them with the older parts of the fabric of medical knowledge.

Before we leave the consideration of electricity and chemistry, we may mention it as one of the benefits conferred upon medical science that the separation of the active principles of various drugs, which forms so conspicuous a feature in modern practice, is almost entirely due to the rapid growth of chemical analysis. To the same cause also we must ascribe the discovery of a number of new remedies which promise hereafter to be extremely valuable; and indeed have already rendered distinguished service.

We must not omit to mention the impulse of the four years of civil war, as a means of promoting the progress of medicine, and especially of surgery. The long period of peace, previous to 1861, was not favorable to the efficiency of the medical departments of the army and navy. The small standing army, and the still smaller navy, were but poorly equipped for such a gigantic struggle as that to which the country was summoned by the bombardment of Fort Sumter sixteen years ago. The medical department was not slow, however, in its preparations to meet the stupendous difficulties of the situation. Very soon the medical service was so completely remodeled and improved as to be on a par with the other departments.

The amount of labor performed by the medical staff during the war was enormous. When the hospitals were closed at the end of the struggle, all the reports connected with the medical service were returned to the Surgeon-General for inspection and analysis. These reports show that 183,287 soldiers died of disease, and 96,089 of wounds. The volumes of the medical and surgical history of the war contain reports of 207,000 cases. In no other country, perhaps, has there been anything like this number of cases treated in the same

length of time; or, if so, no such careful records have ever been published. These reports show that there were during the war 2,789,893 enlisted men in the army.

Of surgeons there were 11,608, and of these surgeons 409¹ died, showing a high rate of mortality as compared with that of other branches of the service.

These facts, and a multitude of others which time forbids us to adduce, demonstrate the fact that medical men as a class are not lacking in devotion to duty or to their country in the hour of need, any more than they are remiss in times of peace in caring for public health, in attending the poor, and in performing other beneficent services, especially during those epidemics by which various sections of our country are so frequently visited.

In the language of Rev. Dr. Wheeler, "without the medical profession, where would be our knowledge of physical life, or of the laws of its growth, the causes which modify it, or the means of perfecting it and the expedients for arresting its premature dissolution. When followed as a liberal profession and not as a trade, it is one of the most beneficent occupations open to the aspiring ambition of man. Its eye is fixed upon life as the organic power of all; on life as permeating and modifying all growth; on life as working ceaselessly toward the production and improvement of its kind. To watch, therefore, this life in the functions and tissues of the human frame, is the more immediate purpose of the profession as a practical power in society. But its highest end is to be a servant, a minister of life."

As has been hinted, there are but few instances in which medical men have been rewarded by the government in any substantial way for the discoveries which they had made. The British Government gave Jenner \$150,000 for the discovery of vaccination. The French Government considered the discovery of quinine of so much importance, that they awarded to Pelletier and Caventou the sum of 10,000 francs. In 1819, the Emperor of Russia settled a pension on

¹ "A Century of American Medicine," p. 208.

a Russian army-surgeon for ligating the internal iliac artery. The first Napoleon mentioned Baron Larrey in his will, and left him a bequest for his fidelity and skill as surgeon-in-chief of the imperial army. Finally, we may mention the legacy left by Washington to Dr. Craik, whom he described in his will as "my compatriot in arms, my old and intimate friend."

These, however, are exceptional cases. We may say of medical progress as of so many other beneficent movements perpetually taking place around us, that it has little to bestow upon its champion beyond the calm approval of conscience and the satisfaction of scientific aspirations. Not only governments but the public also are often found treating the physician with cruel neglect, especially, when old and formerly-valued services are no longer supposed to be needed. An old writer celebrates this with bitterness and not without humor, in the following doggerel lines :

"God and the doctor we alike adore,
But only when in danger, not before ;
The danger o'er, both are alike requited—
God is forgotten, and the doctor slighted !"

To sum up the services rendered to the public by medical men, I would state that during the last year there were treated in the hospitals and asylums of this city 40,000 patients, and in the dispensaries 228,000 more. These statistics do not include the patients in some of the smaller hospitals and dispensaries whose reports we have been unable to obtain. In almost all of these institutions, the services of the physicians are gratuitous. Certainly it cannot be said of the medical profession that it does not bear its share of the burden of taking care of the sick and unfortunate who may need its services. No other class of our citizens contribute so largely to charitable work as do physicians.

We must now say a word or two about medical illusions : "They differ from all other deceits because their consequences are visited by penalties which cannot be remitted. There is no potent field to correct the errors of quackery ; the unhappy victim may be made sensible of his folly, he may be willing

to submit to the laws of necessity, and to die when, in the language of the multitude, 'His time has come,' but who does not know that the exhibition of poisons will hasten the event? who does not know that the prescribing of palliatives is but wasting time, and allows disease to spread its ravages throughout the system during the precious period which should be improved for recovery; and who does not know that for time so wasted nothing can replace it? And yet he finds in the experience which every day, every hour presents, that ignorance and imposture, aided by knowledge of human weakness which knows how to flatter, are permitted to fatten on human suffering, and to make merchandise of human hope."¹

I quote this striking passage from an author whose sentiments are so just that they will be at once assented to by all of us. The history of medical delusions is a very singular one, and affords extraordinary proofs of the credulity of the human mind in matters pertaining to disease: In 1796 a Dr. Perkins, of Connecticut, claimed that, with two small pieces of metal called tractors, he could cure almost all diseases; these two metallic rods were supposed to produce their effects by means of a galvanic current which they started and kept in motion; two years later, the inventor took them to England, and in a short time he performed such wonderful cures, that a Perkinian Institution was established in London. Among its managers were the titled, the learned, and even the Church was represented there. The institution at first flourished: very many cases were reported cured; testimonials of the highest character were written; soon a great demand sprung up for the new American tractors. These little rods of metal, made in a Connecticut village at a cost of a shilling, readily sold to the credulous Englishmen for five guineas a pair. Notwithstanding their great reputation, there were, however, some unbelievers. They proceeded like the magicians who wished to compete with Moses, furnished themselves with instruments like that of their great rival, but they did not know of what material the tractors should be made. As an

¹ Dr. J. R. Manley's Anniversary Discourse, 1848.

experiment they constructed them of wood, and painted them so as to resemble the original tractors. Singularly enough, they performed the same cures, and the wooden tractors were just as valuable in controlling disease as the Connecticut invention which cost twenty-five dollars. Within ten years from its first appearance, Perkinsism was numbered among the things of the past, and is only mentioned to illustrate the credulity of the public, which, indeed, is the first condition of all medical quackery. Some fifty years before Perkins brought out his tractors, Bishop Berkeley had in tar-water discovered a universal remedy which was taken by all sorts of people who were cured by it, as was supposed, of every imaginable disease. This remedy had its day, and is now only spoken of as one of the absurdities of the past.

About the year 1800 Samuel Thomson started a fanciful doctrine which took his name;¹ one of its leading principles is, that "the human body is composed of four elements, earth, air, fire, and water; and consequently, that as metals and minerals are in the earth, and are extracted from its depths, they have a tendency to carry down into the earth all who use them; on the contrary, the tendency of all vegetables is to spring up from the earth. Hence, vegetable remedies tend to uphold man from the grave, and for this reason they should be exclusively used, while mineral remedies should be always avoided." Thomsonianism degenerated into eclecticism, and is on its way to oblivion; like the theories of tar-water, Perkinsism, and of other empiricisms, in which the past century has been so fertile.

Sects in medicine have always existed, and probably always will exist. They flourish for a while, and finally go down. Whatever they may have originated is soon absorbed and utilized by the regular profession, whose course is ever upward and onward, ready to use anything and everything that may be of benefit to the science and practice of medicine, from whatever source it may be obtained. Perhaps the greatest delusion ever started in the scientific world was homœ-

¹ Dunglison's "Medical Dictionary."

opathy, which, on account of its inherent absurdity, found no favor with the regular profession, and was not adopted by it. A few practitioners who could not succeed by honest means adopted it, and have flourished on the pretended opposition of the "old school," as they affected to designate the regular profession. It is a fact, as we have already hinted, which is frequently observed in human nature, that, no matter how absurd or ridiculous a doctrine or system may be, it will always find supporters, especially if its advocates can create a prejudice in the public mind toward its alleged opponents or persecutors. They soon make it appear to the uninformed public that there is something marvelous about the new theory, and that it is opposed by rival sects on account of its superior merits. An adroit advocate of such new systems will soon find friends among people who are incapable of forming a correct judgment on such matters. The adherents of the system or so-called "school" of homœopathy have of late years changed their methods. To all intents and purposes they have abandoned their peculiar system and renounced their distinctive principle; they no longer believe and practise the axiom, "*Similia similibus curantur*," nor in infinitesimal doses. They use medicines of the same kinds as the regular profession, and in equally large doses. They are, in fact, homœopaths only in name, and, so long as they continue in that course, they assist in perpetuating a delusion and in sustaining a practical fraud. If I am not mistaken, there are visible indications on both sides of the Atlantic that the system will be numbered at no distant day among its numerous predecessors, and that people will wonder at the lack of knowledge and judgment on the part of the public, in which such a system could exist together with so much activity of material and intellectual progress. At least this prediction has been made in Europe, where homœopathy has had a fair trial; if it fall into oblivion there, it cannot fail to undergo in due time the same inevitable fate here.

Within the last twenty or twenty-five years there has been a tendency to specialties in the profession. The ophthalmolo-

gists, the orthopedists, the dermatologists, the gynecologists, and throat-doctors, have enlarged their specialties so much as to make the field of medicine much more extensive than formerly.

The discovery of the ophthalmoscope has, in a measure, revolutionized our knowledge of the treatment of diseases of the eye; it has also discovered new diseases, discarded old ones, and in some instances enables us to predict and diagnose incipient renal and mental disease. The laryngoscope enables us to detect and treat successfully lesions heretofore only suspected, and to remove in some instances foreign bodies that could not be reached without it. By means of the microscope, the dermatologist has discovered the causes of many skin-diseases, and has traced them, in numerous cases, to animal or vegetable parasites heretofore not suspected. The gynecologist, by means of the ingenious specula, ligatures, and clamps, which have been invented, many of them in this country, within the last few years, is now enabled to cure or to palliate the evil of many lesions which formerly baffled the best medical skill. The orthopedist, by means of extension, resection, and the subcutaneous division of muscles and tendons, is enabled to make the crooked straight, and to preserve and make useful limbs that under the old surgical *régime* would have been of necessity amputated and lost.

The theory that the variola, scarlatina, measles, typhus, and typhoid, originate spontaneously, was formerly accepted universally by medical science; it is now almost everywhere abandoned, and the new theory, which is firmly believed by many of the leading men in the profession, is that each of these maladies, and perhaps many others also, originates in its own specific germ. Indeed, they have in this revolution of medical doctrine done no more than to revive the old theory, "*Omnes ab ovo.*" Harvey applied this old axiom to the generation of animal and vegetable life, and made thereby signal discoveries in embryology, which, unfortunately, were lost to the world in the great revolution under Harvey's patron, Charles I. of England. In our day this axiom has been util-

ized in a different field of investigation. Harvey deduced the great general principle that living organisms, both vegetable and animal, spring from a seed. We now deduce the principle that every disease springs from its own peculiar specific germ, and cannot originate in any other way. These germs, it is true, have not as yet been studied with as much completeness and accuracy as might be wished; the theory is as yet but in its infancy; still, as Cuvier said, natural history will yet have its Newton, and in a few years it is probable that great discoveries in this field of biological investigation will repay the labors of the microscopist and the physiologist. Enough is known to show us many important indications for the prevention and treatment of diseases, for the germs may long remain latent, and can only receive development under favorable circumstances. If we were obliged to point out the direction in which the next great improvement in medical science and practice will be realized, many of us would not hesitate to point to this germ-theory of disease, as promising brilliant rewards to the patient student and observer.

Of the nature of those contagions, as they are called, by which diseases are propagated, we know and can know with our present faculties but a limited number of facts. What we have to do is, to learn these facts thoroughly, just as Newton learned and pondered those facts which immortalized him by suggesting the great law of gravitation. The germ-theory of disease helps us even in its present imperfect condition to explain many things which formerly were deemed very mysterious; and, though we do not by any means affirm that all the opinions are true which have obtained currency on this subject, the conflicting opinions will destroy each other, and will contribute to establish the truth on a settled and useful foundation.

Among the physicians practising in this city one hundred years ago, perhaps the most upright, energetic, and benevolent, was Dr. Samuel Bard, who was born in New York, about the middle of the eighteenth century. He graduated in medicine at Edinburgh in 1765, and soon afterward com-

menced practice here. In 1769, he delivered a public address, recommending the establishment of a hospital in this city. He was so well received, that a subscription was at once started, and on the same day the sum of eight hundred pounds was collected for the establishment of the New York Hospital. The first building erected for this institution was destroyed by fire when near its completion. The war soon afterward broke out, and the edifice was not rebuilt and ready for occupancy until the year 1791. Dr. Bard was one of its physicians from the first, and he continued to visit it daily until his retirement from practice in 1798. His compendium of obstetrics was the first work of the kind published in this country.

The influence of Mr. Percival Pott upon English surgery was very great, and few men contributed more to its improvement. He was one of the most skillful operators of his time, and made many improvements. The most important, perhaps, was his proposal to take up the femoral artery on the anterior part of the thigh, for the cure of popliteal aneurism. This operation was performed by his pupil, John Hunter, in 1785. Mr. Pott's essay on fractures had great influence. He was the first to discriminate in cases of curvature of the spine, between caries or abscess and other changes of form in the bones. He opposed the general use of the actual cautery and escharotic unguents. He improved the cutting instruments employed in surgery, and was more disposed to trust in the *vis medicatrix naturæ* than many of those about him.

John Hunter, though not as skillful an operator as Mr. Pott, was successful from his great knowledge of physiology and pathology in doing more than any of the surgeons of his day for the advancement of his art. His operation for aneurism, his doctrine of adhesion, granulation, and inflammation, his essay on venereal diseases, all bear witness to his genius.

At that time the method of treating amputation was to keep the flaps separated by means of lint or bandages, in order to promote suppuration. The principle of this treatment was, that this process was necessary to insure the union

of the parts. Now the object is to procure union by first intention, if possible. Here, again, we see how correct principles have tended to improve in this case as in thousands of others. Lister's method of closing the wound hermetically while a spray of carbolic acid is thrown upon the part, and the surrounding air filled with it by means of the atomizer, is well received by surgeons, and bids fair to be more extensively used.

Fifty years ago the zeal and success exhibited by American practitioners were already well known in England. In 1825 Mr. Samuel Cooper made the following remark, "Indeed, it appears to me that the zeal and talent with which the practice of surgery is now cultivated in that part of the world" (the United States) "will soon render it a frequent source of valuable suggestions." Since that time Mr. Cooper's prediction has certainly been fulfilled.

The first clinical instruction in surgery established in this city was given in the New York Hospital, in 1801, by Dr. Valentine Seaman, who was also the first to perform vaccination, as we have previously stated.

To American surgeons belongs the credit of having performed many original operations upon the large arteries. The venerable Mott was the first to tie the arteria innominata in 1818, and though unsuccessful, he always maintained that it was a justifiable operation, and that it would at some time be successfully performed. He lived long enough to know that the operation was done with success. It was performed May 15, 1864, by Dr. A. W. Smyth, house-surgeon of Charity Hospital, New Orleans. This was the only successful case in about a dozen operated upon. Dr. Mott is said to have tied the carotid artery fifty-one times. He tied the common iliac successfully in 1827. Dr. Gibson, of Philadelphia, was the first who tied that artery, in 1812; but his patient died from hæmorrhage and peritoneal inflammation on the thirteenth day.

The subelavian was first ligated by Mr. Keate, of London, in the year 1800. In this country Dr. Wright Post was the first surgeon to perform this operation, in 1817.

Dr. Stevens was the first to ligate the internal iliac artery in 1812, while residing at Santa Cruz, West Indies. John Hunter, of London, was the first surgeon who tied the femoral artery for the cure of popliteal aneurism. He performed this operation in the year 1785, at the suggestion of his tutor, Mr. Pott. The same operation was first successfully performed in this country by Dr. Wright Post in 1796.

The first well-authenticated case of ligature of the carotid was that of Mr. Fleming, an English naval surgeon, who tied the artery for a wound in the throat, October 17, 1803. Dr. Cogswell, of Hartford, Connecticut, tied the artery for a tumor, not being aware at the time that the operation had ever been performed before; it is supposed that Mr. Abernethy tied the carotid artery somewhere about 1778, but there appears to be a doubt about the exact date. On June 25, 1817, Sir Astley Cooper placed a ligature upon the abdominal aorta, just about its bifurcation; the patient lived only a few hours. In this country Dr. Carnochan was the first to ligate the femoral and the external iliac arteries for the cure of elephantiasis of the face and neck. Dr. J. C. Warren, of Boston, was the first to perform a surgical operation while the patient was under the influence of ether; the operation was done at the Massachusetts General Hospital in October, 1846.

Dr. J. Syng Dorsey, author of the first treatise on surgery published in this country, was the first surgeon to ligate the external iliac artery in the United States; it was done in 1811. In England this operation was first performed in 1796, by Mr. Abernethy.

In a case of dislocation of the clavicle, when the bone could not be kept in place by any expedient then in use by surgeons, the late Dr. E. S. Cooper, of San Francisco, used silver wire for that purpose.

The profession is indebted to Dr. Alexander Wood, of Edinburgh, for the hypodermic syringe. The first physician to use sedatives by means of this instrument, in the United States, was the late Dr. G. T. Elliot, in 1857.

Much of the stimulus to the study and improvement of

surgery must be ascribed to the invention of photography. A celebrated teacher of surgery, in London, used to tell his students that one of the indispensable conditions of success was to learn to draw; by means of sketches from morbid specimens the pupil, he said, was able to gain ten times as much in a given period by his own rude efforts and drawings, as if he relied upon the best specimens of printed plates. In his day photography did not exist.

The benefits which this invention now confers upon the students and practitioners of surgery it is impossible to over-estimate. A large volume might be written on the pathological, surgical, physiological, and diagnostical value of the new art of photography. If we have been, in this country, active in the use of this art as an aid to medical progress, we have also been active in improving and perfecting it; and some of the most important improvements it has received owe their origin to scientific men in this country.

In photography we have an illustration of the advantages which chemistry is capable of conferring upon the progress of human knowledge. During the last century thirty-two simple elementary bodies have been discovered which were not known to the chemical analysts of the eighteenth century. But the chief triumphs of chemistry consist, as we have said, in the beneficent agencies which it has multiplied to promote the welfare of mankind.

There has been of late a very singular and mischievous attack made against vivisection. Among other opponents of this beneficent aid to physiological research, we regret to find actively engaged those philanthropic societies which have been organized in several of our large cities for the prevention of cruelty to animals. The conspicuous usefulness of these societies, when confined within their proper sphere, causes regret that they should provoke hostility to themselves by over-leaping the limits within which their proper work applies. One example of their mistakes is that to which we have referred. In their efforts to relieve the lower animals, they have of late attempted to influence legislation in such a way as to

prevent vivisection in this country and in England. The reason assigned for this spurious zeal and imaginary benevolence is, that the experiments of physiologists upon living animals are barbarous and cruel. The great advance in physiology during the last three generations has been due, in a much greater degree than formerly, to experiments upon the living organism of inferior animals. The men who oppose these experiments are not members of the medical profession, nor are they versed in the knowledge of physiology; they are therefore unable to judge of the necessity of the advantages of those experiments which they endeavor to suppress. Nor can they measure the amount of good to the human race which they would prevent, were it possible that they could succeed in their purpose. To the medical man it is not needful to state the advantages of vivisection, but to others it may be of use; to insist upon and to give the widest publicity to the fact that almost all the great truths in regard to digestion, to the circulation, to nervous diseases, to repair of tissues, have been improved or demonstrated by experiments performed upon the lower animals. Many of these experiments have settled the questions for which they were made, hence they need not be repeated; but in other cases, and these the most important, it is necessary to repeat these experiments over and over again until some definite conclusion is arrived at. The prevention and treatment of numerous diseases have received and are continually receiving improvements resulting more or less directly from such experiments; and, since the introduction of anæsthetics, the animal suffers no pain during the operation, as in most cases it is killed before the return of consciousness. If the well-meaning men joined in this crusade against vivisection were better informed, they would know that the scientific observer, in his physiological experiments, avoids in every possible way the infliction of unnecessary pain.

In 1774 William Hunter published his work on the gravid uterus, and perhaps did more than any one before him in elevating obstetrics to the rank of a science—previous to that time obstetrics had been chiefly in the hands of women.

Probably the first man to systematically practise it in this country was Dr. James Lloyd, who began to practise it in Boston in 1753. The first course of lectures on that subject was delivered by Dr. William Shippen, Jr., at Philadelphia, in 1762. To Dr. John Stearns, the first President of this Academy, is due the credit of having introduced to the profession the use of ergot.

The great improvement of forceps, during the last few years, has rendered their use much safer than formerly, and in tedious cases the great amount of suffering has been prevented and many lives saved.

Dr. Ephraim McDowell, of Kentucky, was the first to perform ovariectomy in a rational manner; his operation was performed in December, 1809, and was successful, the patient lived to the age of seventy-nine years. He operated thirteen times, and eight of his patients were cured.

Although so successful in what was considered so grave an operation, his procedure was not at once generally adopted. At that time, and until within a very few years, there was such a dread of severe peritoneal inflammation following the admission of air into the abdominal cavity, that few were bold enough to repeat the operation. In 1822 Dr. Nathan Smith followed McDowell, and since that time the operation has been performed many hundreds of times; indeed, it has now become one of the established operations in surgery. The estimate is, that it has been the means of saving the lives of at least two thousand women. A century ago gynecology could scarcely be said to have existed.

In 1801 Récamier adopted or invented the vaginal speculum. To him is due the credit of having advanced gynecology more than any other surgeon. The speculum had been used by the Greeks, but, when Récamier introduced it, it had for ages fallen into disuse and been forgotten.

Dr. Sims, in 1852, published an article on vesico-vaginal fistula, in which he described the use and advantages of his improved speculum. He thus opened up a new field for conservative surgery, and this instrument has done more than

any other to afford facilities for operation in the treatment of vesico-vaginal lesions.

Among the prominent obstetricians and gynecologists of this country, may be mentioned Drs. Bard, Dewees, Meigs, Hodge, McDowell, Peaslee, the Atlees, Bedford, Nott, Sims, and Emmet.

Dr. Bard was the author of the first American treatise on obstetrics, published in 1807. Dr. W. P. Dewees, for a long time Professor of Obstetrics in the University of Pennsylvania, was the author of several works on that subject, and on the diseases of women and children. These treatises passed through many editions, and were very popular as text-books in their day. Through these books and his lectures, Dr. Dewees exerted a great influence upon the study of obstetrics and gynecology. Dr. Meigs was the first to discover that sudden deaths, *post partum*, were due to cardiac thrombosis, though Virchow, the eminent pathologist of Berlin, has for many years enjoyed the credit of the discovery.

Dr. Hodge, the successor of Drs. Dewees and Meigs, has left to the profession his forceps and pessary, as monuments of his ingenuity and professional skill.

Dr. Bedford was the first in this country to establish a clinic in connection with a medical school for the treatment of diseases peculiar to women.

We are tempted to extend these interesting records indefinitely, but we are warned to bring our discursive and somewhat desultory narrative to a close. There is one subject, however, on which we cannot refrain from offering a passing suggestion. In no other country but our own has so much difficulty existed during the greater part of the last century in drawing the line between the regular profession and the numerous factions who do not belong to it. Dr. J. M. Smith, in 1849, referring to this subject, said: "There are communities in which no means exist that enable the majority of the people to distinguish empiricism from sound medical learning. Such was the fact in this city until within a recent period." The reference here is to the organization of this Academy,

which was intended to discriminate clearly between medical science and quackery, and, during the last twelve years, its efforts for this purpose have been nobly seconded by the Medico-Historical Society. This latter association, by a careful registration of such practitioners as are supposed to abide by the code of ethics of the American Medical Association, has rendered great service to sound medical progress. In this city, and generally throughout the States of New York, New Jersey, and Connecticut, the status of every practitioner of medicine is pretty accurately defined. That great improvements in this respect may not be made, we, of course, refrain from affirming. A similar collection of statistics might be extended with advantage to the other States of New England, as well as to the Western and Southern sections of our country; still, considering the fact that under our popular institutions, and in our peculiar form of government, we cannot derive the aid from legislation which has been craved in some quarters, the success which has been to so great an extent achieved in the past is our best warrant for believing that the course we have adopted in this Academy, and in other like institutions, is the right one; and we have only to persevere in the right course to secure more complete results hereafter. In conclusion, we may say, with the venerable Dr. Francis: "There has ever been a faith in the medical art, wide and unwavering, among all conditions of men, rude or refined; but that faith has been purest and deepest where society is most matured, because of the truths she inculcates in her several departments for human well-being."

